JOINT MESSAGEFORM

SECURITY [redacted]

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

Full

1960 DEC 8 01 39

File Ref 1103

0138

PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		MULTI	SINGLE			
ACTION: OPERATIONAL IMMEDIATE						
INFO						

FROM: 6565 TEST WG VANDENBERG AFB CALIF

SPECIAL INSTRUCTIONS

CLASSIFICATION CHANGED TO [redacted] BY AUTH OF [redacted] 20 SEP 61 BY [redacted] 8 APR 66

GP-[redacted]

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TO: AFBMD LOS ANGELES CALIF

6594 TEST WG (SATELLITE) SUNNYVALE CALIF

LOCKHEED MISSILES & SPACE DIVISION SUNNYVALE CALIF

LOCKHEED MISSILES & SPACE DIVISION P. O. BOX 1506 VANDENBERG AFB CALIF (COURIER) ZEN

DOUGLAS AIRCRAFT COMPANY, P.O. BOX 1596, VANDENBERG AFB CALIF (COURIER) ZEN

INFO: 1ST MISSILE DIVISION VANDENBERG AFB CALIF (COURIER) ZEN

6565 TEST WG VANDENBERG AFB CALIF (COURIER) ZEN

DOWNGRADED AT 3 YEAR INTERVALS; DECLASSIFIED AFTER 12 YEARS. DOD DIR 5200.10

SECRET FROM VWZ-12-7-C

LOSA FOR WDZY; 6594 TEST WG FOR COL MOORE; LMSD/SUNNYVALE FOR DEPT 61-44 (B. W. MARSH); LMSD/VAFB FOR DEPT 65-44 AND 61-70 ZEN; DAC FOR MR. HECKMAN ZEN.

INFO: 1MD FOR COMMAND POST ZEN; 6565 TEST WG FOR

DATE	TIME
7	
MONTH: DEC	YEAR: 1960

SYMBOL	SIGNATURE
VWZ	Harold M. Powell, Jr.
TYPED NAME AND TITLE (Signature, if required)	TYPED (or Stamped) NAME AND TITLE
Harold M. Powell, Jr., Maj, USAF	LUCIUS A. FERRY, JR., Col, USAF Deputy Commander for Space Launches
PHONE 8-5050 / PAGE NR. 1 / NR. OF PAGES 8	
SECURITY C[redacted]	

Cy #1 of 2 Copies

DD FORM 1 MAY 58 173 REPLACES DD FORMS 173, 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONFIRMATION SHEET

SECURITY CLASSIFICATION: [redacted]

FROM: 6565 TEST WG VANDENBERG AFB CALIF [redacted]

YWZE (MR. FISCHEL) ZEN. SUBJECT: FLASH REPORT ON LAUNCHING OF DISCOVERER XVIII (NIGHT SHIFT-PRESTO).

1. DISCOVERER XVIII COMPRISED OF THOR BOOSTER NO. 296 AND AGENA B ORBITAL STAGE NO. 1103 WAS LAUNCHED FROM SM-75-3 PAD 4 AT 1221 PST ON 7 DECEMBER 1960. THE PRIMARY LAUNCH OBJECTIVE TO PLACE THE DISCOVERER SATELLITE WITH PAYLOAD INTO NEAR-POLAR ORBIT WAS ACHIEVED, AND VEHICLE TRACK HAS BEEN ACQUIRED ON FIRST PASS BY THE KODIAK AND HAWAIIAN STATIONS.

2. THE PRIMARY TEST OBJECTIVES FOR DISCOVERER XVIII LAUNCH AND ASCENT WERE AS FOLLOWS (REFERENCE DETAILED TEST OBJECTIVES, LMSD 446404, SECTION 2):

A. DISCOVERER BOOSTER

THE BOOSTER MUST POSITION THE DISCOVERER VEHICLE WITHIN FIVE NAUTICAL MILES OF A SPECIFIED POINT AT BURNOUT WITH A FLIGHT PATH ANGLE WITHIN FOUR DEGREES AND A VELOCITY WITHIN 500 FPS OF THE SPECIFIED NOMINAL VALUES.

B. AGENA AIRFRAME AND ADAPTER

THE AGENA AIRFRAME AND ADAPTER MUST WITHSTAND THE LAUNCH AND FLIGHT ENVIRONMENT.

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C. AGENA PROPULSION SYSTEM

THE AGENA RETRO ROCKETS MUST PROVIDE THE THRUST REQUIRED TO EFFECT SEPARATION. THE AGENA PROPULSION SYSTEM MUST PROVIDE THE IMPULSE REQUIRED AFTER SEPARATION TO ATTAIN ORBITAL VELOCITY AT THE INJECTION ALTITUDE.

D. AGENA ELECTRICAL POWER SYSTEM

THE AGENA ELECTRICAL POWER SYSTEM MUST PROVIDE THE ELECTRICAL POWER REQUIRED FOR SATISFACTORY SYSTEMS OPERATION.

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E. AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM

THE AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM MUST DERIVE THE TIME TO INITIATE ORBITAL BOOST AND THE VELOCITY TO BE GAINED DURING ORBITAL BOOST AND MUST INITIATE AND TERMINATE ORBITAL BOOST IN ACCORDANCE WITH THESE VALUES. THE SYSTEM MUST ALSO MAINTAIN PROPER VEHICLE ATTITUDE AFTER SEPARATION AND MUST CONTROL THE TIME AND SEQUENCE OF CERTAIN SPECIFIED OPERATIONS.

F. AGENA SPACE COMMUNICATIONS SYSTEM

THE AGENA SPACE COMMUNICATIONS SYSTEM MUST PROVIDE A CONTINUOUS IDENTIFICATION SIGNA[redacted]

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PONDER OPERATION AS REQUIRED FOR TRACKING AND COMMAND BY GROUND STATIONS.

G. GROUND SUPPORT EQUIPMENT

THE GROUND SUPPORT EQUIPMENT MUST SATISFACTORILY CHECK OUT THE DISCOVERER BOOSTER AND ORBITAL STAGE.

H. DISCOVERER SYSTEM FACILITIES

THE DISCOVERER SYSTEM FACILITIES MUST PROVIDE ADEQUATE DATA RECORDS, A SATISFACTORY GROUND COMMAND CAPABILITY, AND NECESSARY STATION COMMUNICATIONS.

3. PRELIMINARY EVALUATION OF TEST OBJECTIVE ACHIEVEMENT FOLLOWS.

A. DISCOVERER BOOSTER - OBJECTIVE ACHIEVED

BOOSTER MECO OCCURRED AT T+149.3 SEC AND VECO OCCURRED AT T+156.6 SEC. VEHICLE POSITION, VELOCITY, AND FLIGHT PATH ANGLES AT BURNOUT WERE WITHIN THE SPECIFIED LIMITS. AGENA ACCELEROMETER RECORDS SHOW A 20 CPS LONGITUDINAL ACCELERATION WITH A MAXIMUM MAGNITUDE OF 3.5 G'S PEAK TO PEAK DURING THE BOOST PHASE.

B. AGENA AIRFRAME AND ADAPTER - OBJECTIVE

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ACHIEVED.

AVAILABLE RECORDS INDICATE NO STRUCTURAL PROBLEMS.

C. AGENA PROPULSION SYSTEM - OBJECTIVE ACHIEVED.

THE AGENA RETRO-ROCKETS EFFECTED A SATISFACTORY SEPARATION AT T+170.6 SEC. AGENA ENGINE IGNITION OCCURRED AT T+255.0 SEC AND SHUTDOWN OCCURRED AT T+489.3 SEC. TOTAL ENGINE OPERATING TIME WAS 234.3 SEC. ENGINE OPERATION WAS SATISFACTORY. THE SENSIBLE VELOCITY GAIN OF APPROXIMATELY 16,400 FPS DURING AGENA ENGINE OPERATION WAS SUFFICIENT TO OBTAIN ORBIT AT THE INJECTION ALTITUDE.

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D. AGENA ELECTRICAL POWER SYSTEM - OBJECTIVE ACHIEVED.

ELECTRICAL POWER SYSTEM OPERATION APPEARS TO HAVE BEEN SATISFACTORY.

E. AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM - OBJECTIVE ACHIEVED.

THE TIME FOR INITIATION OF ORBITAL BOOST AND THE REQUIRED VELOCITY-TO-BE-GAINED WERE SATISFACTORILY DERIVED FROM THE POINT MUGU VERLORT TRACKING DATA. THE DURATION OF COM[redacted]4, 5 AND 6 WERE

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42.4 SEC AND 15.1 SEC RESPECTIVELY. THE COMMANDS WERE PROPERLY ACCEPTED BY THE VEHICLE, AND THE VELOCITY GAIN OF 16,400 FPS CLOSELY AGREES WITH THE INTEGRATOR SETTING AS ADJUSTED BY COMMAND 6. AGENA ENGINE SHUTDOWN APPEARS TO HAVE BEEN COMMANDED BY THE INTEGRATOR.

E. AGENA SPACE COMMUNICATIONS SYSTEM - OBJECTIVE ACHIEVED.

OPERATION OF THE ACQUISITION BEACON AND THE S-BAND TRANSPONDER WAS SATISFACTORY DURING ASCENT. THE ACQUISITION BEACON WAS TRACKED UNTIL T+545 SEC AND THE TRANSPONDER UNTIL T+550 SEC.

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F. GROUND SUPPORT EQUIPMENT - OBJECTIVE ACHIEVED.

THE DISCOVERER BOOSTER AND ORBITAL STAGE WERE SATISFACTORILY CHECKED OUT DURING THE COUNTDOWN BY THE GROUND SUPPORT EQUIPMENT. PROBLEMS WERE ENCOUNTERED WITH THE AGENA FUEL TRUCK AND THOR LOADING COMPUTER BUT THEY WERE OVERCOME PRIOR TO LAUNCH.

H. DISCOVERER SYSTEM FACILITIES - OBJECTIVE ACHIEVED.

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GROUND COMMANDS WERE SATISFACTORILY TRANSMITTED, AND STATION COMMUNICATIONS WERE ADEQUATE. TELEMETRY DATA WERE SATISFACTORILY RECEIVED AND RECORDED. THE TELEMETRY DATA WERE NOT DECOMMUTATED SATISFACTORILY IN REAL TIME AT THE VAFB TRACKING STATION BECAUSE OF LOW LINE VOLTAGE TO THE DECOM EQUIPMENT. THE TELEMETRY SIGNAL WAS RECEIVED UNTIL T+352 SEC.

4. ADDITIONAL INFO

A. THE TRAJECTORY OF THE VEHICLE DURING ASCENT VERY CLOSELY FOLLOWED THE PREDICTED TRAJECTORY IN AZIMUTH AND WAS SLIGHTLY HIGH. INJECTION ALTITUDE WAS 151 STATUTE MILES; INJECTION VELOCITY WAS 25,900 FPS; AND INJECTION FLIGHT PATH ELEVATION ANGLE WAS +1 DEGREE AS DETERMINED FROM THE VERLORT PLOTTING BOARD CHART.

B. TOTAL HOLD TIME DURING THE COUNTDOWN WAS 40 MIN. THE TWO HOLDS WERE CALLED TO ALLOW TRAINS TO CLEAR THE HAZARD AREA AND TO INVESTIGATE AND CORRECT THE THOR LOADING COMPUTER PROBLEM.

C. PAD EQUIPMENT, PARTICULARLY ELECTRICAL

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[redacted] CONTINUATION SHEET

[redacted]

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CABLING, INCURRED GREATER DAMAGE THAN DURING THE PREVIOUS DISCOVERER LAUNCHING. HOWEVER, THE RECOVERY TIME IS NOT EXPECTED TO EXCEED ONE WEEK.

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